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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/369,510	08/06/1999	JOHN A HOSSACK	5050/584	6883

757 7590 11/27/2001

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EXAMINER

CHOOBIN, BARRY

ART UNIT	PAPER NUMBER
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2621

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DATE MAILED: 11/27/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/369,510

Applicant(s)

Hossack

Examiner

Choobin Barry

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Oct 19, 2001
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 40-46 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 40-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirements.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 18 20) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 40,41 are rejected under 35 U.S.C. 102(e) as being anticipated by Vesely (U.S. Patent 5,817,022).

As to claims 40,41, Vesely discloses an ultrasonic imaging method comprising:

- (a) acquiring image data for a plurality of frames (100 cycles), each frame identified with a respective phase of a physiological cycle (heart beat);
- (b) generating a first extended field of view image from image data associated with a first phase of the physiological cycle (30 images during the heart beat) from multiple selected ones of the frames of (a) associated with the first phase of the physiological cycle (first heart beat) and acquired from substantially co-planar, partially-overlapping spatial regions;
- (c) generating a second extended field of view image associated with a second phase of the physiological cycle from image data from multiple selected ones of the frames of (a) associated

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with the second phase of the physiological cycle and acquired from substantially co-planar, partially-overlapping spatial regions (second heart beat); and

(d) displaying at least the first and second extended field of view images in sequence to a user (column 2, lines 35-63 wherein cardiac cycle can be played back in the computer screen in some appropriate format).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 42,43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vesely in view of Weng et al (U.S. Patent 5,782,766).

As to claim 42, Vesely discloses an ultrasonic imaging method comprising:

- (a) acquiring image data for a plurality of frames (see claim 40);
- (b) extracting a time reference based on a Doppler characteristic of the image data of (a);
- (c) identifying each frame with a respective phase of a physiological cycle based at least in part on the time reference of (b);

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(d) generating a first image from image data associated with a first phase of the physiological cycle from multiple selected ones of the frames of (a) associated with the first phase of the physiological cycle;

(e) generating a second image associated with a second phase of the physiological cycle from image data from multiple selected ones of the frames of (a) associated with the second phase of the physiological cycle; and

(f) displaying at least the first and second images in sequence to a user.

Vesely fails to disclose a Doppler characteristic of the image data.

But on the other hand, Weng et al disclose velocity related “Doppler mode” image information to give a panoramic “color” map or movement information in the area covered by the image (column 3, lines 47-49). Furthermore, Weng et al’s method and apparatus recognizes that ultrasonic images from real time scanning operation are highly correlated from one frame to another (column 2, line 63 through column 3, line 12) which corresponds to “(b) extracting a time reference based on a Doppler characteristic of the image data of (a);

(c) identifying each frame with a respective phase of a physiological cycle based at least in part on the time reference of (b)”.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the method of Weng et al with the work of Vesely in order to give a panoramic “color” map of movement information in the area covered by the image.

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As to claim 43, Weng et al disclose the Doppler characteristic of (b) comprises at least one of maximum Doppler flow velocity and maximum Doppler energy (column 3, lines 53-59).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vesely in view of Weng et al as applied to claim 42 above, and further in view of Ji et al (U.S. Patent 6,110,117).

As to claim 44, both Vesely and Weng et al fail to disclose mean Doppler energy for said plurality of frames.

But on the other hand, Ji et al disclose mean Doppler energy (column 3, lines 25-46).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the work of Ji et al with the work of Vesely and Weng et al.

Claims 45 and 46 are similarly analyzed and rejected.

CONTACT INFORMATION

Any inquiry concerning this communication from the examiner should be directed to Mahmood Choobin whose telephone number is (703) 306-5787.

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The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 4:30 p.m. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached at (703) 305-4706.

Any response to this action should be mailed to: Commissioner of Patents and Trademarks
Washington, D.C. 20231. or faxed to: (703) 872-9314, (for formal communications intended for entry),
(703) 308-5397 (for informal or draft communications, please label "PROPOSED" or "DRAFT"). Hand
delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor
(Receptionist).

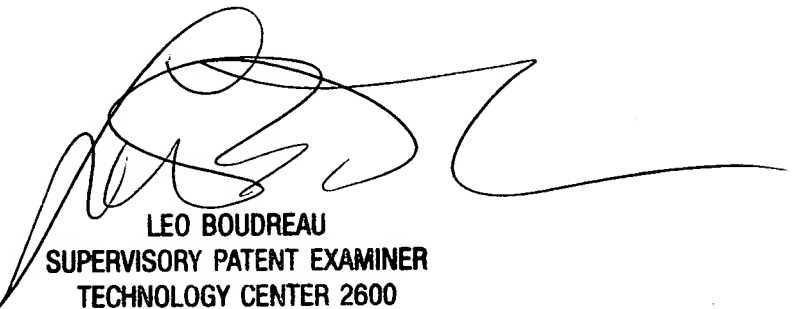
Any inquiry of a general nature or relating to the status of this application should be directed to the
Group Receptionist whose telephone number is (703) 305-3900.

Barry Choobin

Patent Examiner

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November 16, 2001



LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600